# AB 758 MANDATED COMPREHENSIVE ENERGY EFFICIENCY PROGRAM FOR EXISTING RESIDENTIAL AND NONRESIDENTIAL BUILDINGS

## A. Legislative Requirements

AB 758 requires the Energy Commission to develop and implement a comprehensive program to achieve greater energy savings in the state's existing residential and nonresidential building stock. The program will be established through regulations; the Energy Commission is required to start a regulatory proceeding by March 1, 2010. The program is required to be comprised of a complimentary portfolio of techniques, applications, and practices that will achieve greater energy efficiency in existing residential and nonresidential structures, which fall significantly below the efficiency required by the current California Building Energy Efficiency Standards (Title 24, Part 6).

The Legislature recognizes that this comprehensive program will include a broad range of inter-operative program components necessary to ensure meaningful and reliable energy assessments of each building's energy consumption level, relative efficiency compared to other buildings, and opportunities to achieve greater efficiency or improve the building's energy resource utilization; the accomplishment of cost-effective energy efficiency improvements in the state's existing buildings; and the provision of multiple implementation approaches to enable these improvements, including public and private sector energy efficiency financing, public outreach and education, and green workforce training. The bill directs the Energy Commission to consider these components when developing the program, as well as other factors and strategies that the Energy Commission deems appropriate.

AB 758 explicitly directs the Energy Commission to consider the following in developing the program:

1. The amount of annual and peak energy savings, greenhouse gas emission reductions, and projected customer utility bill savings that will accrue from the program;
2. The most cost-effective means and reasonable timeframes to achieve the goals of the program;
3. The various climate zones within the state;
4. An appropriate method to inform and educate the public about the need for, benefits of, and environmental impacts of, the comprehensive energy efficiency program;

5. The most effective way to report the building energy assessment and the corresponding energy efficiency improvements to the owner of the residential or nonresidential building, including, among other things, the following:
    a. Prioritizing the identified energy efficiency improvements;
    b. The payback period or cost-effectiveness of each improvement identified;
    c. The various incentives, loans, grants, and rebates offered to finance the improvements;
    d. Available financing options including all of the following:
        i. Mortgages or sales agreement components;
        ii. On-bill financing;
        iii. Contractual property tax assessments;
        iv. Home warranties;
6. Existing statutory and regulatory requirements to achieve energy efficiency savings and greenhouse gas emission reductions;
7. A broad range of implementation approaches, including both utility and nonutility administration of energy efficiency programs;
8. Any other considerations deemed appropriate by the Energy Commission.

AB 758 directs the Energy Commission to do the following:

1. Minimize the overall costs of establishing and implementing the comprehensive energy efficiency program requirements;
2. Ensure, for residential buildings, that the energy efficiency assessments, ratings, or improvements do not unreasonably or unnecessarily affect the home purchasing process or the ability of individuals to rent housing. A transfer of property subject to the program implemented pursuant to this section shall not be invalidated solely because of the failure of a person to comply with a provision of the program;
3. Ensure, for nonresidential buildings, that the energy improvements do not have an undue economic impact on California businesses;
4. Determine, for residential buildings, the appropriateness of the Home Energy Rating System (HERS) program to support the goals of AB 758 and whether there are a sufficient number of HERS-certified raters available to meet the program requirements;
5. Determine, for nonresidential structures, the availability of an appropriate cost-effective energy efficiency assessment system and whether there are a sufficient number of certified raters or auditors available to meet the program requirements;
6. Coordinate with the California Workforce Investment Board, the Employment Training Panel, the California Community Colleges, and other entities to ensure a qualified, well-trained workforce is available to implement the program requirements;
7. Coordinate with, and avoid duplication of, existing proceedings of the Public Utilities Commission and programs administered by utilities.

The Energy Commission is also directed to coordinate with the Public Utilities Commission and consult with representatives of the Department of Real Estate, the Department of Housing and Community Development, investor-owned and publicly-owned utilities, local governments, real estate licensees, commercial and home builders, commercial property owners, small businesses, mortgage lenders, financial institutions, home appraisers, inspectors, energy rating organizations, consumer groups, environmental and environmental justice groups, and other entities the Energy Commission deems appropriate.

The comprehensive program that AB 758 directs is expected to be an ongoing and evolving transformation of the market to deliver the substantial energy savings and greenhouse gas emissions reductions inherent in the state's existing residential and nonresidential building stock. The bill directs the Energy Commission to periodically update the comprehensive program and adopt any revision that, in its judgment, is necessary to improve or refine program requirements after receiving public input. The Energy Commission is also directed to report on the status of the comprehensive program in the Energy Commission's biannual Integrated Energy Policy Report and annual supplements.

AB 758 also directs the Public Utilities Commission to take complimentary actions in parallel to the Energy Commission's development and implementation of the comprehensive program, including conducting a proceeding to investigate the ability of utilities to provide energy efficiency financing options to their customers for the purpose of implementing the Energy Commission's comprehensive program, and including an assessment of each utilities' actions in the implementation of the Energy Commission's comprehensive program in each triennial report to the Legislature of the utility energy efficiency programs that the Public Utilities Commission oversees.

AB 758 likewise directs the governing bodies of each local publicly-owned electric utility to take actions in parallel to the Energy Commission's development and implementation of the comprehensive program, including the implementation of energy efficiency programs to encourage energy savings and greenhouse gas emission reductions in existing residential and nonresidential buildings, and including the utility's status in implementing those energy efficiency programs in reporting to the Energy Commission for analysis and recommendation for improvement in each biannual Integrated Energy Policy Report.

The Legislature directed the Energy Commission to use the federal American Recovery and Reinvestment Act (ARRA) funds for the development and implementation of the comprehensive program. The Energy Commission is taking immediate action to do so to cover program costs during the period of time that ARRA funds are available to California, beginning in FY 2009-10, and continuing in FY 2010-11 and FY 2011-12, up to the termination of ARRA funds on May 1, 2012. Subsequently, the Energy Commission will seek approval to use ERPA funds to continue the ongoing development and implementation of the program.

## B. Background

The California home building industry delivers up to 200,000 newly constructed homes each year (up to 1.5 percent of the over 13 million homes in the existing housing stock). As a result of California's long-standing efforts since 1978 to make those newly constructed homes energy efficient through Building Energy Efficiency Standards, California has avoided the need to build about 3,000 MW of new electricity generation capacity or about 6 medium sized power plants, reducing California's energy bills and improving the state's economy and environment. Over time the building stock is changed out with each year's addition of more efficient, newly constructed homes, so that now, 30 years after the Energy Commission started putting into place Building Energy Efficiency Standards, over 40 percent of California's housing stock is more efficient, as a result of California's comprehensive Standards program.

However, approaching 60 percent of California's housing stock, and a comparable percentage of California's nonresidential building stock, was built prior to any Building Energy Efficiency Standards. And California's Standards have markedly improved over time, inexorably adding energy efficiency measures and construction practices as technology has advanced. So, in a very high percentage of California's existing buildings, substantial efficiency improvements are feasible and cost effective. Major energy savings and the societal benefits that accompany those savings could be achieved through a comprehensive energy efficiency program for existing residential and nonresidential buildings. These savings are extremely important to California's economy and environment, particularly due to the air quality and water resource impacts of power plants and the energy bill impacts of unnecessary electricity and natural gas use, and they are crucial to California's efforts to mitigate climate change through greenhouse gas emission reductions.

The Air Resources Board's Assembly Bill 32 Scoping Plan identifies energy use in buildings as the second largest contributor to California's greenhouse gas emissions. Almost one-quarter of California's greenhouse gas emissions can be attributed to buildings. In fact, improving the energy efficiency of existing residential and nonresidential buildings is the single most important activity to reduced greenhouse gas emissions in the electricity and natural gas sectors. The Scoping Plan calls for aggressive action for existing buildings, including establishment and mandatory disclosure of performance ratings for buildings, efficiency improvement requirements for under-performing buildings, and creative financing options, such as on-bill financing.

In its AB 549 Report to the Legislature, *Options for Energy Efficiency in Existing Buildings (2005),* the Energy Commission made a series of recommendations for capturing these important energy savings. The Energy Commission recommended expanding on its recent efforts to establish, through its Building Energy Efficiency Standards, energy efficiency requirements for alterations to existing buildings, and the completion of the California Home Energy Rating

System as authorized by Public Resources Code (PRC) 25942. It recommended disclosure of home energy ratings at point-of-sale, expanded use of utility websites as information gateways for energy efficiency information, expansion of whole-building diagnostic testing and repair, focused attention to the use of Home Energy Rating System (HERS) ratings in the affordable housing sector, and special attention to quality installation and tune-up of heating and air conditioning equipment. For the nonresidential sector, the AB 549 Report advocated for expanded benchmarking and retro-commissioning of existing nonresidential buildings. The AB 549 Report has been a foundational document for guiding the efforts of the Energy Commission that lead up to the comprehensive program mandated by AB 758.

In 2007, AB 1103 (Saldaña) added PRC 25402.10 requiring nonresidential building owners to disclose benchmarking data and ratings to prospective buyers, lessees, or lenders. The Energy Commission is in the process of developing regulations to carry out this legislation.

In December 2008, the Energy Commission adopted regulations for establishing whole-house home energy ratings and energy audits for existing California homes (termed HERS Phase II). Also, over the past two years the Energy Commission has been working with the California Tax Credit Allocation Committee (TCAC) to develop a Utility Allowance Calculator to eliminate barriers to the consideration of energy efficiency and solar in the financing of affordable housing projects in California and to the qualification by TCAC of energy efficient projects for state and federal affordable housing tax credits.

In February 2009, the President signed the American Recovery and Reinvestment Act, which provided $3.1 billion nationally for the State Energy Program (SEP). In May 2009, California was the first state in the nation to apply for this funding, and was granted $226 million. The Energy Commission has allocated up to $110 million to address state and regional policies including aggressive greenhouse gas emission reduction and building energy use reduction goals. Programs allocated funding include residential and nonresidential retrofit programs occurring in nearly all counties in the state; major population centers have been identified for workforce development support to build a clean energy workforce to accomplish energy assessments, retrofits and upgrades; the “Energy Upgrade California” statewide brand and full-featured web portal provide current and timely information on money-saving energy improvements, rebates, incentives, eligible contractors and more; and funding has been allocated to pilot alternative residential and nonresidential financing programs, following concerns raised by the Federal Housing Finance Authority (FHFA) about PACE-type financing programs. In addition, the Energy Commission allocated $20 million for green workforce training. These SEP programs will be pursued in close coordination to maximize the effectiveness of building retrofits in achieving energy savings and job creation, while building the workforce and infrastructure for the market transformation that will be necessary to meet California’s energy and greenhouse gas emission reduction goals from our existing residential and nonresidential buildings.

As a condition for awarding ARRA SEP funds to states, each Governor was required by federal law to make a commitment to adopting advanced building energy efficiency standards and to achieving high levels of compliance with those building energy efficiency standards.
On February 23, 2009, Governor Schwarzenegger sent a letter to Steven Chu, the Secretary of Energy, that made the following statements,

> "California has residential and commercial building codes in place that include some of the strictest energy efficiency standards in the nation … California is committed to implementing a plan for achieving compliance with these Standards in at least 90 percent of all newly constructed buildings and in at least 90 percent of all additions and alterations to existing buildings within eight years of enactment of this Act."

Accomplishment of the requirement for advanced building energy efficiency standards will be a matter of staying the course on California energy and climate change policies; accomplishing the Governor's commitments for compliance will be much more challenging, in particular the commitment for compliance with requirements for additions and alterations to existing buildings.

AB 2021 (2006, Levine) required the Energy Commission to investigate options and develop a plan to improve the energy efficiency of, and to decrease the peak electricity demand of, air conditioners in the state. In June 2008, the Energy Commission completed that report. Key recommendations were related to the problem that there is a major failure within the heating, ventilation and air conditioning (HVAC) industry to comply with long-standing California Building Code and contractor license law to obtain permits for installing replacement furnaces and air conditioners. Studies have shown that mechanical contractors pull permits for less than 10 percent of their replacement air conditioning and furnace jobs, knowingly failing to comply with the law. This makes it impossible for local building departments to enforce Building Energy Efficiency Standards requirements for quality installation of furnaces and air conditioners, since that enforcement is triggered by permit applications. Local governments are denied the resources necessary to enforce health and safety codes and energy efficiency standards because the revenue for funding this enforcement comes from permit fees.

It has been estimated that the energy use and peak demand of the large number of central air conditioners replaced in California residences and small commercial buildings (estimated at approximately 400,000 units in 2006) is unnecessarily 30 to 50 percent greater than it should be due to poor quality installations. This energy loss and peak demand impact is a major hit on the state's electric generation system, coming most severely on the peak summer days when high temperatures cause almost all of California's air conditioners to be operating, driving up demand to the point where the electricity system is taxed to the point of failure, risking rolling brownouts and spiking electricity prices.

The Energy Commission is working with a task force of stakeholders on ways to reverse this practice of failure of the mechanical contracting industry to obtain permits and complete quality installations of replacement furnaces and air conditioners, including the HVAC industry (manufacturers, distributors, contractors), the Contractors State License Board, the statewide association of local building officials - California Building Officials (CALBO), the investor-owned utilities, and the California Public Utilities Commission (CPUC). The task force has identified the following specific actions to be pursued: development of a simplified streamlined, online or fax back building permitting process for HVAC alternations, recruitment of building departments to implement it on a pilot basis, and assessment of the pilots for statewide use; collaboration between the Energy Commission, CSLB, CALBO and local building departments on an ongoing basis to identify jobs where building permits are not pulled and compliance with the Standards is not achieved and take action to cause those jobs to comply and for the involved contractors to be disciplined; and provision of training to contractors regarding the need to pull permits and comply with the Standards and distribution of public information to consumers regarding how to identify contractors who properly pull permits and use quality installation procedures in compliance with the Standards.

AB 758's comprehensive program to achieve increased energy efficiency in existing residential and nonresidential buildings will need to address how to take advantage of the major opportunity to reduce energy use at the point of alteration of existing buildings where Building Energy Efficiency Standards requirements are triggered. In so doing, the commitments for high levels of compliance made by the Governor as a condition to receiving the ARRA SEP funding will need to be pursued. Efforts in this area should build upon the initiatives that the Energy Commission has taken to date to redress the failings of the contracting industry to pull permits and complete quality installations.

## C. State-Federal Connections

In 2003, the Energy Commission, California Public Utilities Commission and the California Power Authority adopted the first California Energy Action Plan as a post-energy crisis call-to-action. These agencies, endorsed by Governor Schwarzenegger, established the "loading order" that prescribes the priority sequence for actions to address California's energy needs. The loading order identifies energy efficiency and demand response as the State's preferred means of meeting growing energy needs. Cost-effective energy efficiency is the resource of first choice for meeting California's energy needs because it is the least cost, most reliable, and most environmentally-sensitive resource, and minimizes our contribution to climate change.

In 2006, the Legislature and Governor Schwarzenegger enacted AB 32, capping California's greenhouse gas emissions at the 1990 level by 2020. AB 32 placed reducing greenhouse gas emissions at the center of the State's agenda. The following year the 2007 Integrated Energy Action Plan (IEPR) placed principal focus on how to extend the Energy Commission's mission to ensure available,

affordable, reliable, technologically-advanced and environmentally sound energy to include maximum reduction of greenhouse gas emissions. The 2007 IEPR concluded that climate change is the most important environmental and economic challenge of this century, and greenhouse gas emissions are the largest contributors to global warming. The 2007 IEPR clearly pointed out that not only is energy efficiency at the top of the loading order for energy policy reasons, but that California's ability to slow the rate of growth of greenhouse gas emissions will largely depend first on energy efficiency. As a result, the 2007 IEPR established as its top recommendation the intent to achieve 100 percent of all cost-effective energy efficiency.

The 2008 Update to the Energy Action Plan (EAP) pointed out that meeting our AB 32 goals will require unprecedented levels of energy efficiency investment. The EAP stated that it will not be enough to replicate current strategies for delivery of energy efficiency options to customers, but that new and innovative approaches will be needed that have not yet been tried. The EAP concluded that improving the efficiency of existing buildings will be the biggest challenge. Current rebate programs have not been adequate to capture all cost-effective energy savings in the existing building stock. This supports the findings of the CPUC's 2008 Strategic Plan that found that California must refocus its residential efficiency efforts away from the "widget" based approaches of prior utility programs, which provided rebates for energy efficient equipment, to a "whole-house" approach that provides comprehensive energy assessments, energy efficiency options and tools, rebates and financing options, and quality installation services. The Strategic Plan endorsed the California Home Energy Rating System (HERS) standards for existing homes that were nearing adoption by the Energy Commission at the time and the intent to have disclosure of HERS ratings at the point-of-sale of homes and multi-family buildings, and inclusion of HERS ratings in real estate listing information.

The Strategic Plan also endorsed the nonresidential benchmarking and retro-commissioning recommendations of the Energy Commission's AB 549 Report to the Legislature, and the development of building rating and labeling for existing nonresidential buildings, to include both operational ratings (to disclose the comparative energy consumption of buildings) and asset ratings (to disclose the comparative level of energy efficiency features of buildings). The Strategic Plan concluded that such building rating and labeling would be a potent means of making energy efficiency a key determinant in driving the commercial real estate market.

In March 2009, the U.S. Department of Energy (DOE) released its State Energy Program (SEP) funding announcement with guidelines for states to apply for ARRA SEP funding. In part the guidelines pointed out the following:

- The American Recovery and Reinvestment Act (ARRA) was enacted to preserve and create jobs and promote economic recovery, assist those most impacted by the recession, provide investments needed to increase economic efficiency by spurring technological advancements, and invest

in environmental protection and other infrastructure that will provide long-term economic benefits.

- DOE is responsible for administering the SEP program for the purpose of stimulating the creation or increased retention of jobs, saving energy, increasing energy generation from renewable sources, and reducing greenhouse gas emissions.
- The SEP Strategic Plan establishes the following four goals: increase energy efficiency to reduce energy costs and consumption for consumers, businesses, and government; reduce reliance on imported energy; improve the reliability of electricity and fuel supply and the delivery of energy services; and reduce the impacts of energy production and use on the environment.
- States are encouraged to use their SEP ARRA funds to seed sustainable programs and put in place long-term funding mechanisms that will provide lasting benefits and lead to long-term market transformation.
- Among the program areas that states can fund are: programs of public education to promote energy conservation; programs for financing energy efficiency investments; programs for encouraging and carrying out energy audits of buildings; programs for promotion and development of energy efficiency ratings systems so that consumers can compare the energy efficiency of different housing; programs to identify unfair or deceptive acts or practices which relate to the implementation of energy efficient measures and to educate consumers concerning such acts or practices; programs to provide training and education to contractors to promote building energy efficiency; programs for the development of building retrofit standards and regulations; collaborative programs for energy efficiency that link a state's energy and environmental objectives.

California's ARRA SEP application responded to DOE's funding announcement with two major initiatives, a statewide energy efficiency retrofit program targeted at existing residential and nonresidential buildings and a comprehensive, sustainable green workforce development program. Among the goals and objectives of California's application were:

- Implementation of HERS and other performance-type rating programs, commercial benchmarking and retro-commissioning programs, and extending California law and programs as primary tools for achieving energy efficiency improvements;
- Achievement of a greater penetration of energy efficiency and clean energy systems in participating homes and businesses than has been achieved through existing programs;
- Creation of a sustainable residential and non-residential energy retrofit industry and workforce, including professionals in the energy efficiency performance rating and labeling of buildings and building contractors, clean energy systems contractors, and other installers;
- Providing necessary capital to cities and counties within California to develop and implement revolving loan programs for energy efficiency and renewable energy projects.

The application mentioned two promising activities that California's SEP program will address. Public education on the benefits and value of energy efficiency continues to be a barrier to full and effective implementation of energy efficiency programs. An effective education, marketing and outreach effort will be necessary to ensure the program achieves the maximum potential benefits in terms of energy savings, greenhouse gas reductions, and programmatic momentum and sustainability into the future.

On September 30, 2009, the Energy Commission adopted the State's Guidelines for the State Energy Program. Up to $110 million dollars was made available for three inter-related programs aimed at energy efficiency retrofits of existing residential and nonresidential buildings:

1. Municipal Financing Program (AB 811-type programs)
2. California Comprehensive Residential Building Retrofit Program
3. Municipal and Commercial Building Targeted Measure Retrofit Program.

On October 8, 2009, the Energy Commission released 3 solicitations for proposals for delivery of these three programs. However, following cancellation of the Municipal Financing Programs, on July 28, 2010, as a result of concerns raised by the Federal Housing Finance Authority (FHFA) regarding PACE-type financing programs, a statewide brand and full featured web portal, called "Energy Upgrade California (EUC)" was added to the slate of State Energy Programs, to provide information on money-saving energy improvements, rebates, incentives, eligible contractors and more. The EUC brand is designed to minimize consumer confusion about ARRA-funded programs, and identify contractors that are pre-approved to work on the various ARRA programs. The web portal is designed to provide Californians with a one-stop place to find information on the myriad of utility, local, state and federal incentives, rebates and tax benefits (and eventually financing options) available for energy efficiency upgrades. Additional funding was set aside to pilot alternative residential and nonresidential financing programs, to begin to address the limited financing options available to homeowners and commercial building owners to finance energy retrofits and upgrades.

Separately, the Energy Commission in collaboration with the Employment Development Department, the Employment Training Panel, and the California Workforce Investment Board has launched the largest state-sponsored green jobs training program in the nation. An additional $20 million of ARRA SEP funding is being made available through that program, much of it targeted at training the workforce necessary to deliver quality installation of energy efficiency in California's existing residential and nonresidential buildings.

The ARRA and AB 758 mandates, goals and approaches are very consistent. Each of the approaches that the Energy Commission will pursue through ARRA SEP funding could be an important element of the AB 758 comprehensive program. The delivery of the programs that the Energy Commission will contract for using ARRA SEP will provide valuable information about the viability of these

approaches and serve to put us ahead of traditional approaches that have been focused primarily on low cost, relatively low impact, single measures usually without specific attention to quality installation. AB 758 calls for a complete portfolio of approaches, including those recommended by the Energy Commission in its AB 549 Report to the Legislature. These would include building labeling for both residential and nonresidential buildings, with labels being used potentially at several critical events in the life of the building where the value of energy efficiency needs to be factored into financial transactions, ratings/energy audits, building commissioning and potentially required retrofits.

The other strong connection between the ARRA and AB 758 mandates is the Governor's required commitment, as a condition to California receiving the ARRA SEP programs, to pursuing a plan for achieving high compliance with the Building Energy Efficiency Standards over the coming eight years, particularly related to addressing the huge opportunity that exists to move the mechanical contracting industry to pulling permits for HVAC replacements and complying with the Standards requirements for verified quality installation. The strategies that are established to address that industry's problems will apply to and create a precedent for similar, though perhaps less severe, problems with other industries, such as the roofing industry, also failing to consistently pull permits and comply with the Standards requirements for alterations, such as the requirement for cool roofs at the point of re-roofing.

Between now and April 2012, the Energy Commission will be strongly focused on the expedited delivery of the ARRA SEP programs that are targeted on quality installation of retrofits in California's existing residential and nonresidential buildings. The preeminent reason for the Recovery Act funds is to provide immediate stimulus to the economy and put American workers back to work. There is a very narrow window of time, of which only about 2 ½ years remain as of now, to use these funds to make a pronounced difference in California's economy and unemployment. As a result of the program solicitations that the Energy Commission released on October 8, 2009, the Energy Commission expects several contracts to be awarded and then managed. Startup of these programs will be intense as these separate contracts will have to be grounded in the Energy Commission's directions from the program Guidelines; implementation plans will have to be negotiated with the Energy Commission; and activities will have to be launched to train contractors and other workers, market the programs and recruit participants, and accelerate the delivery of services that will result in the funding being spent on retrofits.

Throughout the term of the ARRA program, the Energy Commission will be working intensely with its program contractors to ensure the most successful set of programs possible to effectively deliver the funds into the California economy and make market transformational impacts on the delivery of quality installations of energy efficiency to these existing buildings. This will include the extensive reporting that will be required by the federal government and the assurance of transparency that the funds are used in a prompt, fair and reasonable manner without fraud, waste, error, or abuse.

A major objective of these ARRA SEP programs is that they are sustainable, making lasting changes in the market beyond the termination date of the ARRA funding. The programs that are launched and the infrastructure that is developed will be expected to continue to provide benefit to California's economy and workforce beyond the program end date, and contribute to California's major goals for achieving 100 percent of cost-effective energy efficiency, so as to meet the requirements of AB 32 greenhouse gas emissions reduction. These programs will be a test bed for piloting approaches to achieve deep retrofits in our existing buildings. The Energy Commission will want to build the most successful aspects of these programs into the AB 758 comprehensive program, and modify and refine them over time. The Energy Commission will face the major challenge, after the ARRA program termination date, of designing regulatory and market-based programs that will maintain and expand the momentum of these programs into the future.

The AB 758 Mandated Comprehensive Energy Efficiency Program for the Existing Residential and Nonresidential Buildings will be two separate but coordinated programs:

- Development, Implementation and Sustained Delivery of the AB 758 Program for Existing Residential Buildings
- Development, Implementation and Sustained Delivery of the AB 758 Program for Existing Nonresidential Buildings

Although there are similarities between the two programs, there are many differences including types and complexity of the buildings, building occupancy and use patterns, ownership and leasing patterns, building features and equipment types, building size and impact on energy consumption due to the building envelope loads rather than the internal people and equipment loads, sensitivity of the building to its climate, portion of the year that the building is in cooling rather than heating mode, stakeholder groups – stakeholders usually specialize in one of these types of buildings not both, utility rate structures and tariffs, property value determined by building income rather than comparable buildings, tax treatment of business operating costs, building code regulation and real estate law provisions, and the extent to which different types of building and energy professionals are involved in design and operation. In combination these differences make it a necessity to conduct these two programs as separate initiatives, each with their unique opportunities, stakeholders and constraints.

<u>Development, Implementation and Sustained Delivery of the AB 758 Program for Existing Residential Buildings</u>

AB 758 requires the Energy Commission to develop a comprehensive energy efficiency program for existing residential buildings to ensure meaningful and reliable energy assessments of the each building's energy consumption level, relative efficiency compared to other buildings, and opportunities to achieve greater efficiency or improve the building's energy resource utilization; the

accomplishment of cost-effective energy efficiency improvements in the state's existing buildings, and the provision of multiple implementation approaches to enable these improvements, including public and private sector energy efficiency financing, public outreach and education, and green workforce training.

This effort will build on the Energy Commission's recent adoption of the HERS Phase II regulations, establishing Standards for the completion of HERS whole-house ratings and energy audits and efforts to pilot the disclosure of HERS ratings at the point-of-sale of homes. It also will build on Energy Commission coordination with the Tax Credit Allocation Committee, moving towards the use of HERS ratings as standard practice in affordable housing programs, particularly at the time of major rehabilitation.

The Energy Commission's work will be especially challenging given the direction of AB 758 that energy efficiency assessments, ratings, or improvements do not unreasonably or unnecessarily affect the home purchasing process or the ability of individuals to rent housing. In particular, the bill's requirement that a transfer of residential property not be invalidated solely because of the failure of a person to comply with a provision of the program creates a constraint on the requirements that the Energy Commission can place at the point-of-sale. Approaches will need to be developed that address the need to disclose ratings at point-of-sale while addressing these limitations in the bill. This will require considerable effort to streamline the rating and improvements process so that it will be fully workable within the real estate transaction process.

The Energy Commission also will need to develop strategies for potentially addressing the completion of ratings at other trigger events in the life of a building, including at the point of refinancing, building alterations, and replacement of appliances and equipment, and utility service changes. The California Association of Realtors has recommended the requirement of ratings and improvements for every California home upon a date certain, for example, within five years of Energy Commission adoption of regulations. All of these approaches will need to be carefully evaluated, considering all of the factors directed by the legislation. The development, rulemaking proceeding and implementation phases will have to be conducted involving collaboration with the state agencies identified in the bill and coordination and consideration of the input of the wide range of stakeholders identified in the bill.

A major responsibility of the Energy Commission will be the development and ongoing upgrading of building energy assessment tools and protocols. In adopting HERS Phase II, the Energy Commission developed the initial version of the HERS Technical Manual, which prescribes standardized rules for HERS rating software, HERS certificates and supporting reports, utility bill analysis and methods for comparison and cross-validation with building simulations, evaluation of all energy efficiency measures, measure costing, and procedures for prioritizing and evaluating the cost effectiveness and non-energy benefits of measures. The HERS Technical Manual will be a living document, and will need

to be revised over time as issues are identified, new measures and technologies come into the forefront, and the rating and building performance contracting industries gain experience and sophistication.

The AB 758 comprehensive programs for energy efficiency in both existing residential and nonresidential buildings would not be complete without strong attention to quality installation of energy efficiency at the point of alteration of existing buildings. This will be accomplished through expanded and more effective achievement of energy efficiency requirements in the Building Energy Efficiency Standards for additions and alterations.

This effort will build on the Energy Commission's emphasis over the past few cycles of updates to the Building Standards on the energy savings potential arising from the very large number of construction projects that occur in remodeling, retrofitting, rehabbing, renovating, replacing equipment at the end of its useful life, and upgrading to make tenant improvements that together are alterations to existing residential and nonresidential buildings. California contractor licensing and building code law requires contractors to pull building permits and meet Standards requirements to make those alterations energy efficient.

It is critical that California overcome the major problem where the contractors making these alterations act in an underground manner, bypassing requirements to pull building permits and meet code. This effort will build on the Energy Commission's identification of these problems for the AB 2021 report and the actions taken since then to work with key stakeholders whose industry has responsibility for this problem or who strongly are impacted by the negative consequences of this problem.

The Energy Commission will also need to continue to work with the Contractors State License Board and the California Building Officials (CALBO) to find ways to cause builders to pull permits and comply with the Standards, including the development and piloting of online building permitting, and active engagement in identification of contractors who fail to pull permits and comply, so that those contractors can be disciplined. This effort also should address other recommendations of the AB 2021 report, including expanded training of contractors in quality installation practices and dissemination of public information to consumers to make them aware of the benefits of quality installation, the consequences of unlawful contractor practices and noncompliance, and approaches to identify and employ contractors who are conscientious and deliver verified quality in their work.

This effort will directly support the Governor's commitment, as a condition for the state receiving ARRA SEP funding, to carry out plans to achieve a high level of compliance with the Building Energy Efficiency Standards for alterations.

Development, Implementation and Sustained Delivery of the AB 758 Programs for Existing Nonresidential Buildings

AB 758 requires the Energy Commission to develop a comprehensive energy efficiency program for existing nonresidential buildings to ensure meaningful and reliable energy assessments of the each building's energy consumption level, relative efficiency compared to other buildings, and opportunities to achieve greater efficiency or improve the building's energy resource utilization; the accomplishment of cost-effective energy efficiency improvements in the state's existing buildings, and the provision of multiple implementation approaches to enable these improvements, including public and private sector energy efficiency financing, public outreach and education, and green workforce training. This calls for a major expansion of what the Energy Commission has been able to do in the past with existing funding.

This effort will build upon the Energy Commission's efforts to introduce benchmarking and building rating and labeling into California. It will build on work that the Energy Commission has done under the Public Interest Energy Research (PIER) program to develop a California specific benchmarking tool, and the effort the Energy Commission has initiated to develop regulations to implement AB 1103 and AB 531 (2009, Saldaña), which require the benchmarking of all existing California nonresidential buildings on a time schedule established by the Energy Commission.

It also will build upon recent collaboration the Energy Commission has begun with national experts planning the development of nonresidential building rating and labeling tools and programs, which will include both operational ratings (like today's benchmarking programs, which compare the energy consumption of similar buildings which is driven by their operation) and asset ratings (similar to a HERS rating, which compares the level of energy efficiency built into the building due to its physical characteristics, or assets). This two-pronged rating approach is modeled after the European Union's 2003 Energy Performance of Buildings Directive, which each European country is in the process of implementing to provide required ratings and labels for every existing building.

This effort also will build upon the Energy Commission's efforts to introduce retro-commissioning of nonresidential buildings into California, including PIER's development of the California Commissioning Guide for Existing Buildings and the Energy Commission's long-standing sponsorship and support of the California Commissioning Collaborative.

The Energy Commission's work will be especially challenging given the direction of AB 758 to establish the availability of appropriate and cost-effective rating and labeling tools and to ensure that the energy improvements do not have an undue economic impact on California businesses.

A major responsibility of the Energy Commission, which was emphasized in AB 758, will be the development and ongoing upgrading of building energy

assessment tools and protocols. While the residential program effort already benefits from the initial version of the HERS Technical Manual, the development of counterpart systems for the commercial program will be the Energy Commission's first order of business, and will be extremely challenging to accomplish. In particular the development of a California rating and labeling tool to establish asset ratings is new ground that will require Energy Commission innovation and commitment. An effective California rating and labeling program will need to address all of the considerations that the Energy Commission needed to confront in developing the HERS Phase II program, recognizing that nonresidential buildings and their energy systems and equipment are inherently much more diverse and complex than those in residential buildings.

The Energy Commission must develop, implement and sustain the delivery of a program that meets the AB 758 requirement of not having an undue economic impact on California business, collaborate with the unique set of state agencies that have responsibility for and influence over the key real estate and financial transactions where energy efficiency is important to building investment decision making, and coordinate and consider the input of the wide range of stakeholders identified in the bill that impact this sector's buildings.

The Nonresidential Program also will require strong attention to quality installation of energy efficiency at the point of alteration of existing buildings through expanded and more effective achievement of energy efficiency requirements in the Building Energy Efficiency Standards for additions and alterations. In addition to the extensive replacement of equipment in nonresidential buildings, each year there are a significant number of tenant improvements, where a commercial tenant moves into buildings or parts of buildings that were previously occupied by a commercial enterprise whose business was serving another function. Tenant improvements are remodeling projects to reconfigure, furnish or equip the building or space to suit the needs of the new tenant. Often these tenant improvements can be extensive and call for alterations of the energy features in compliance with the Standards.

While the problem of failure of contractors to pull permits and comply with the Standards may be less severe for nonresidential buildings, because building owners have more to lose in risking unlawful activity, the problem also exists with nonresidential alterations. The Energy Commission has recently updated its Standards to call for cool roofs at the time of reroofing to reduce air conditioning needs. Reroofing is an example of alterations where there is a significant problem with nonresidential contractors failing to pull permits and comply with the Standards. Lessons learned from developing and implementing a program to increase pulling permits for HVAC will be extended to address similar problems related to reroofing for nonresidential buildings.